The National Wetlands Inventory

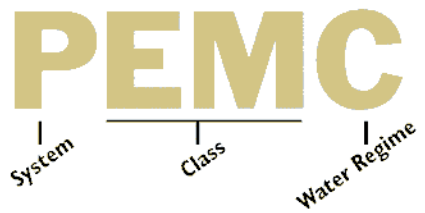
An increasing awareness of the benefits provided by wetlands prompted Congress to mandate that the USFWS conduct a comprehensive inventory of the nation's wetlands. The result was the National Wetlands Inventory (NWI), which began in 1978. The classification system (Cowardin *et al.* 1979) adopted by the NWI defines wetlands as

> ... lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water ... (1)

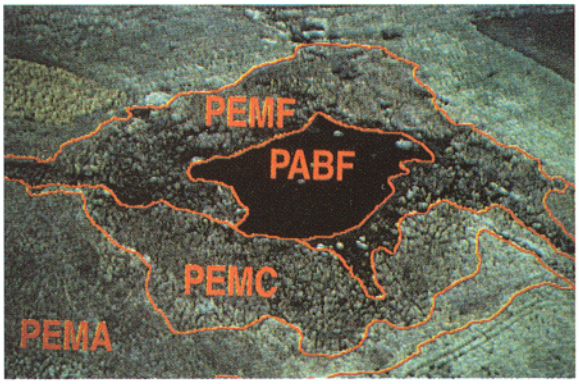
The definition goes on to say in technical terms that wetlands are areas that are ponded with surface water or saturated long enough during the growing season to develop wetland soils and wetland plant communities.

Wetlands are delineated and classified by the NWI on color infrared aerial photographs taken in years when most wetlands are ponded, which allows for the highest possible accuracy in delineating the typical distribution of wetlands. Field and laboratory quality control procedures ensure that NWI maps are as accurate as possible.

Elements of the Cowardin et al. (1) classification system.



Boundaries within potholes were eliminated for this report. This pothole would be classified as semipermanent because of the deep center ringed by cattails.

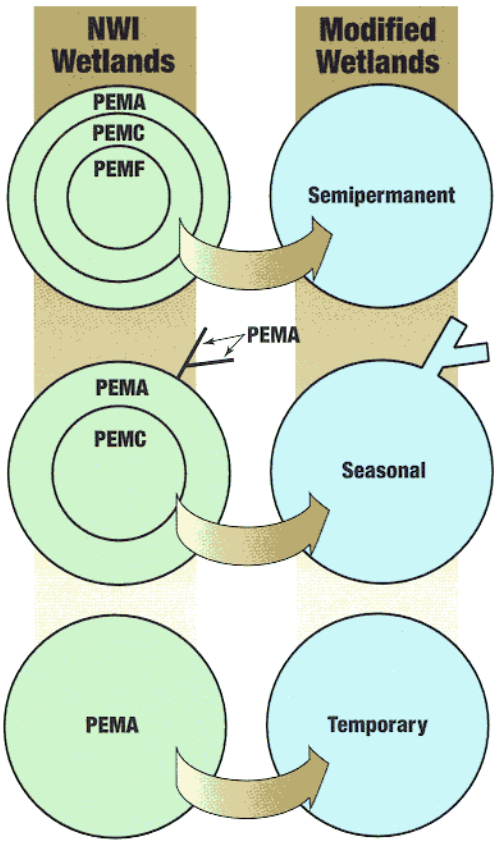


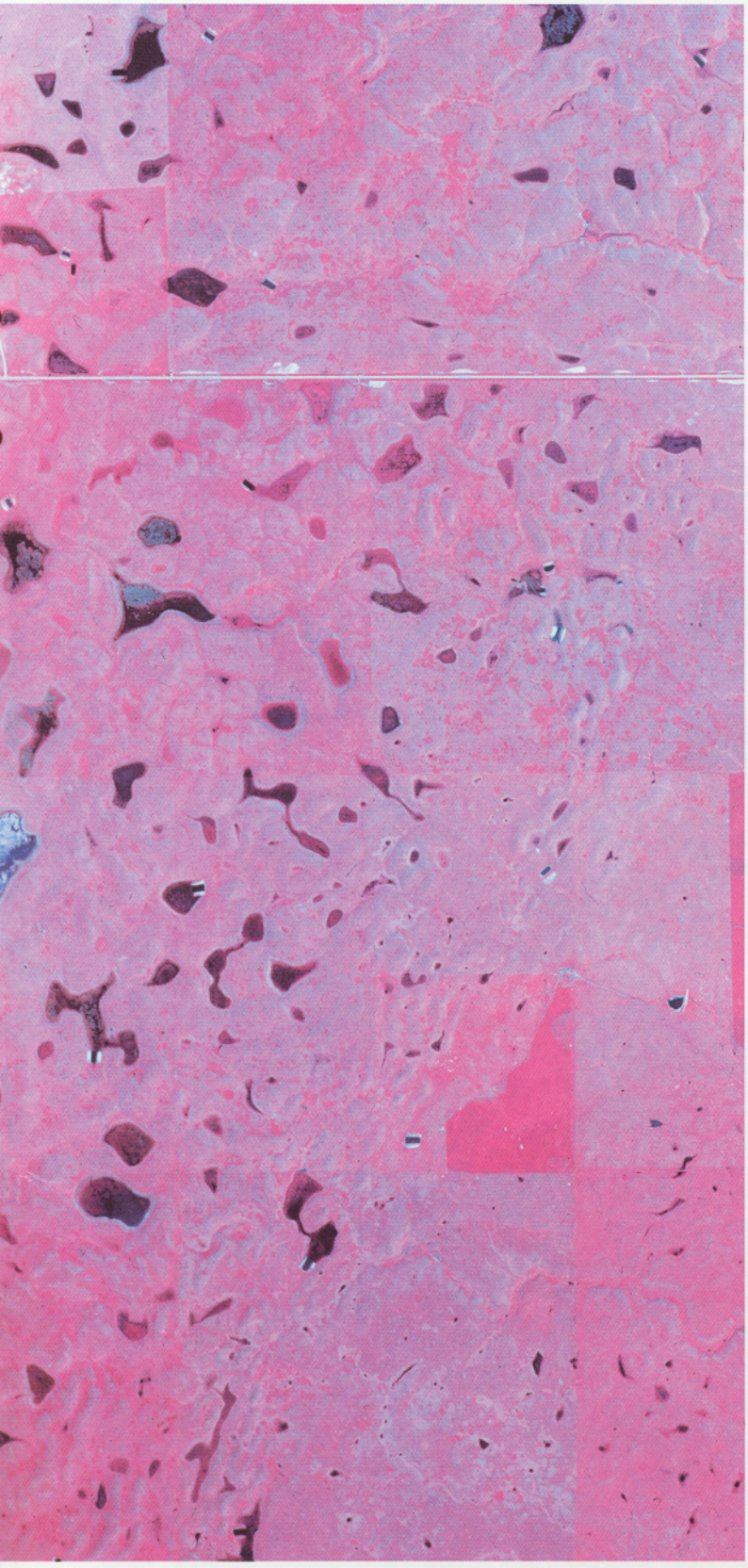
However, wetlands are a dynamic resource; the amount of water that they contain increases and decreases as precipitation and evaporation conditions change. NWI maps are a "snapshot in time" intended to depict the distribution of wetlands under typical conditions.

For detailed information on NWI classification or mapping systems, consult Cowardin *et al.* (1) or NWI users' guides like *NWI Maps Made Easy* (6). Johnson and Higgins (3) published a technical summary of eastern South Dakota wetlands as classified by the NWI.

For this report, a computer was used to modify NWI digital data to create maps showing the perimeter of potholes, lakes, impoundments, and excavated wetlands, classified by the most permanently ponded area they contain. River channels were also included. The data are not directly comparable to estimates from original NWI maps because of these modifications.

NWI wetlands were generalized for this report.





High altitude CIR photo of the northeast Missouri Coteau before ...

... and after wetland delineation and classification by the NWI

Temporary wetlands pond water for brief periods during the growing season. The water table (the ground water surface) is usually well below the soil surface when the wetland is not ponded.

When temporaries are not tilled, they commonly contain a mixture of upland and wetland species, including wetland grasses, such as creeping foxtail, blue joint, and reed canary grass, and other species, including dock, fine sedges, and some smartweeds.

Seasonal wetlands are usually ponded for extended periods (commonly through June or later) during the growing season. When not ponded, the water table is usually at or near the ground surface.

Foxtail barley, a common native grass in temporary wetlands

Vegetation in seasonals is often robust sedges, whitetop, spike rushes, rushes, arrowhead, plaintain, smartweeds, cattails, and bulrushes.

Every midwestern duck hunter is familiar with **semipermanent wetlands**. They take their name from the fact that they hold water throughout the year in most years, although they may dry up during prolonged droughts.

In South Dakota, the most common plant species in semipermanents are cattails, bulrushes, and floating or submersed vegetation like duckweed, bladderwort, coontail, or water milfoil.

As their name implies, **permanent wetlands** typically hold water throughout every year, although included in this group are some potholes and lakes that may dry up during extreme drought.

Only submersed plants like those listed for semipermanents are common, although emergent plants such as cattails or bulrushes may grow around the shoreline.

Rivers may contain water throughout the year or for brief periods following snow melt or rain. Rivers flow within channels which lack trees, cattails, or similar emergent vegetation.

Temporary wetland in a crop field

Seasonal wetland

Water plantain, a common emergent plant in seasonal wetlands

Giant Burreed, a common emergent plant in semipermanent wetlands

Gary Creek

Permanent wetland